Debbie Beadle

From: R.Crispin <rcrispin1@yahoo.com>
Sent: Thursday, December 06, 2012 6:15 PM
To: ECA
Subject: ECA Public Hearing
Attachments: Frequently Flooded Areas.pdf; Landslide Hazard Areas.pdf; Appendix_ A - Steep Slope Structures.pdf

See attachments:
Frequently Flooded Areas.pdf
Landslide Hazard Areas.pdf
Appendix_ A - Steep Slope Structures.pdf

EXHIBIT NO. 278.

December 6, 2012

Frequently Flooded Areas (FFA)

Suggested Change (strikethroughs)

21A.50.230 Frequently flooded areas.

(1) Frequently flooded areas include all areas of special flood hazards within the jurisdiction of the City of Sammamish.

(a) The areas of special flood hazard are identified by the Federal Insurance Administration in a scientific and engineering report entitled "the Flood Insurance Study for King County," as amended, as stated in SMC 15.10.060. The flood insurance study is on file at Sammamish City Hall. ~~*The best available information for flood hazard area identification as outlined in SMC 15.10.130(2) shall be the basis for regulation until a new FIRM is issued that incorporates the data utilized under SMC 15.10.130(2).*~~

~~*(b) The director may use additional flood information that is more restrictive or detailed than that provided in the Flood Insurance Study conducted by the Federal Emergency Management Agency (FEMA) to designate frequently flooded areas, including data on channel migration, historical data, high water marks, photographs of past flooding, location of restrictive floodways, maps showing future build-out conditions, maps that show riparian habitat areas, or similar information.*~~

(2) Development in frequently flooded areas shall be subject to the provisions in Chapter 15.10 SMC. (Ord. O2005-193 § 1; Ord. O99-29 § 1)

Background:

This section was substantially altered by Ord. O2005-193 (Jan 2006). At the October 6, 2005 Planning Commission meeting it was stated by city staff that flood hazards were comprehensively addressed in Chapter 15.10 of the Sammamish Municipal Code, and therefore, rather than providing duplicated regulations, this section references those development standards.

-- The suggested strikethroughs above are in keeping with that approach. --

Reason for Change:

(1)(a) The portion of (1)(a) proposed to be struck, refers to SMC 15.10.130, Duties and Responsibilities of the City Manager. It has no relevance here. Also, the sentence already exist in SMC 15.10.060, it is just an unneeded duplication here.

(1)(b) This paragraph would be the duty of the City Manager under SMC 15.10.130. Regardless, this is the task of the full time King County engineers assigned to the Flood Insurance Study scientific report, working in conjunction with FEMA. There is no better data than the Study; it controls. If the director has better information, it should be presented.

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December 6, 2012

Landslide Hazard Areas

WAC 365-190-120 states that (1) a geological hazard has to be "significant" to pose a threat and (2) geological hazards can be reduced or mitigated through engineering, design, or construction practices. By applying technology and basic engineering principles many homes can be safely built on or adjacent to slopes while maintaining or improving the safety of the slope (See examples in Appendix_ A – Steep Slope Structures).

The following changes are recommended to SMC 21A.50.260 for all pre-existing lots:

Item #1a. Buffer Reduction

A buffer should be able to be reduced to zero, as is the case in King County code, when determined by geotechnical analysis and/or by engineering mitigation:

SMC 21A.50.260 (2) The buffer may be reduced to ~~a minimum of 15 feet~~ zero if, based on a critical areas study, the City determines that the reduction will adequately protect the proposed development and other properties, the critical area and other critical areas off-site.

Item #1b. Buffer Elimination

Alternatively, consider replacing the word buffer with the phrase "slope setback" throughout this section. A slope setback offers an individual more flexibility.

Item #2. Modify slope safety factors in SMC 21A.50.260 (2)(b)(iii)(H).

In Chapter 7 of the WSDOT Geotechnical Design Manual (introduced as BAS), The following factors of safety for slope stability analysis were specified:
Cuts and fills = 1.25
Foundations adjacent but not directly supported by the slope =1.3
Foundations on slopes for structures and retaining walls = 1.5

Item #3. Consider adding more alternatives

Building on a slope should be allowed with a minimum F.S. of 1.5, without having to be an RUE. Ultimately, the technological issue may not be the driving force, but rather the cost.

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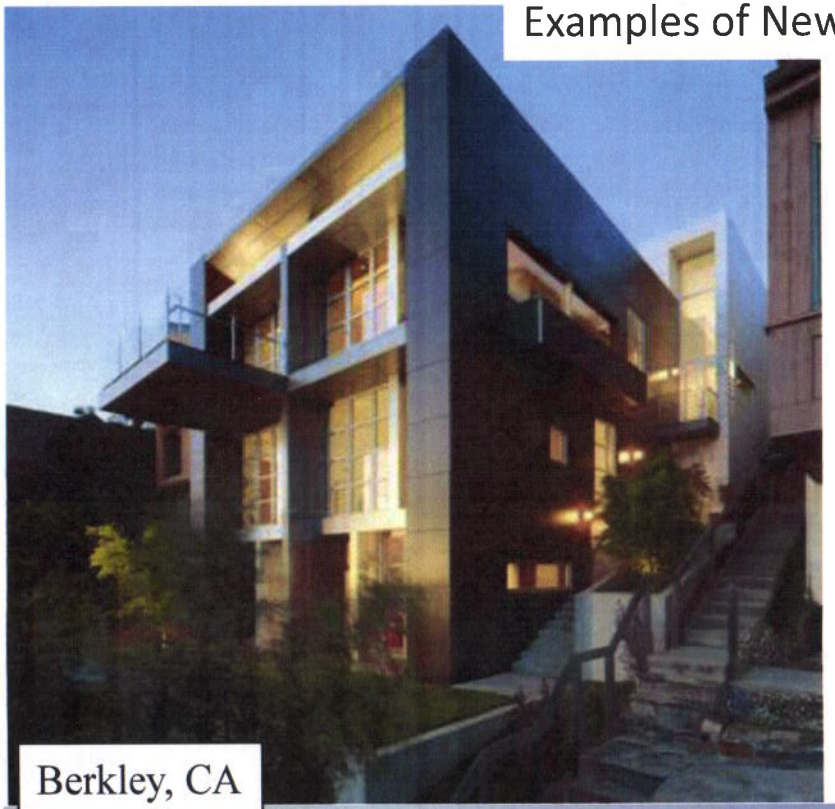
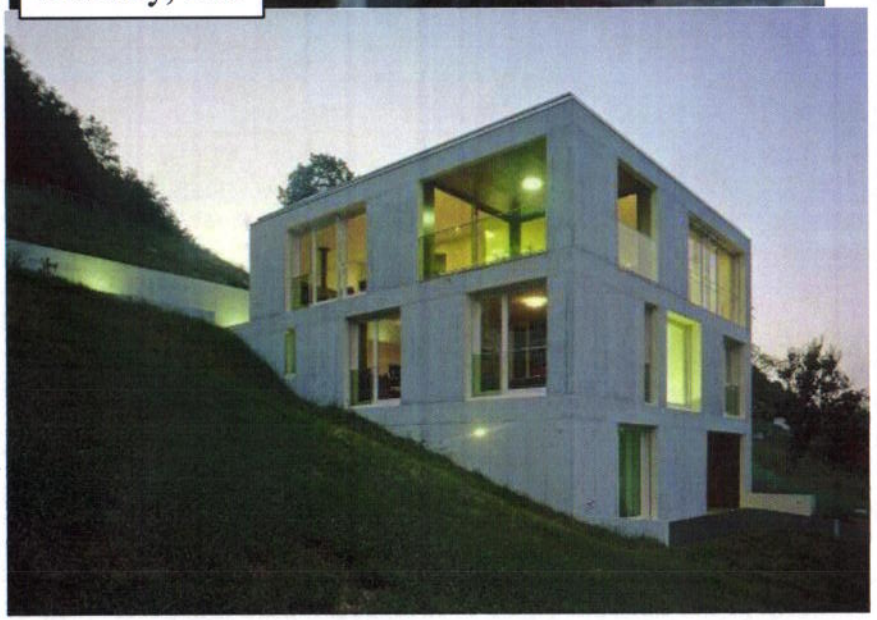
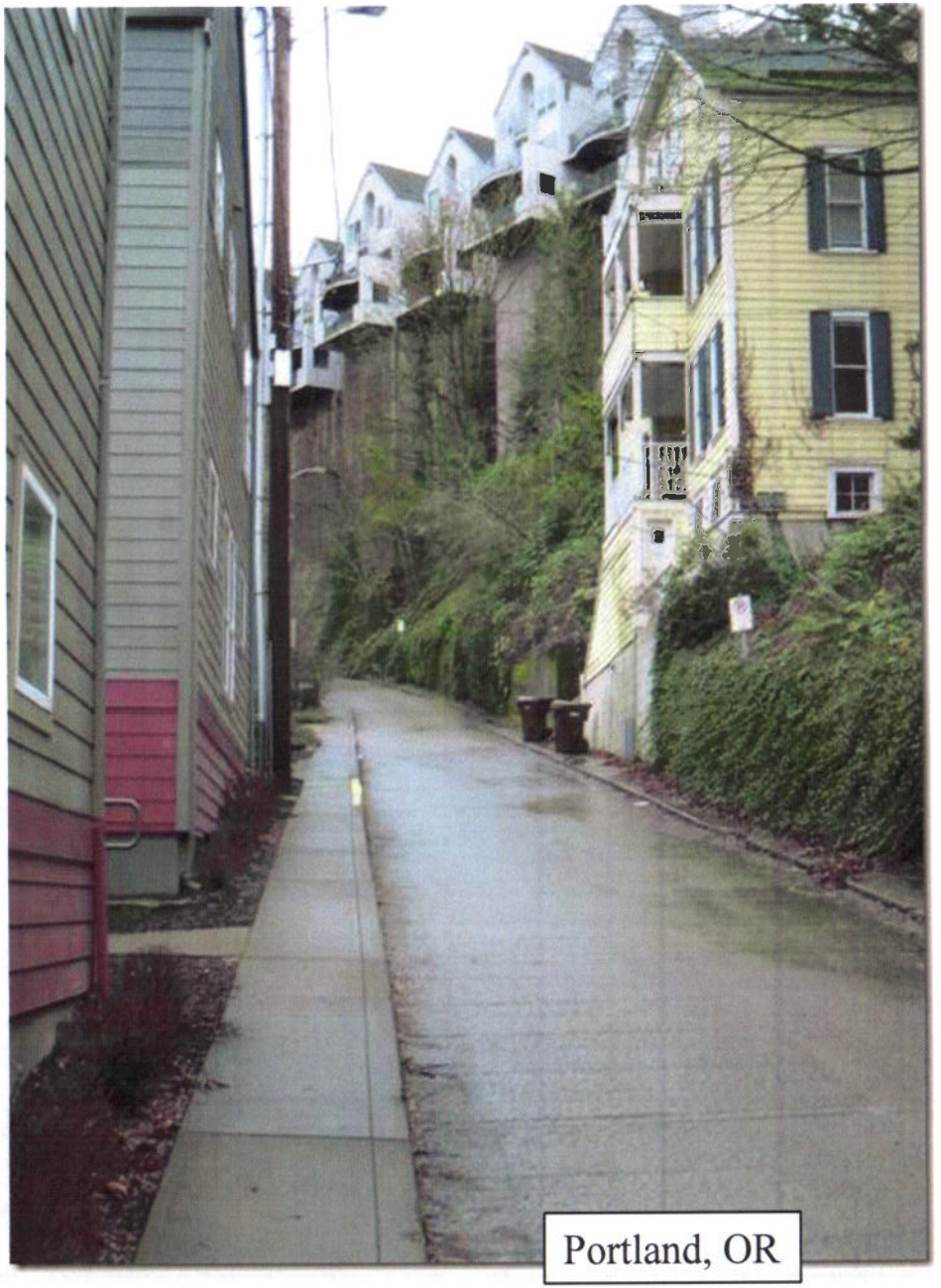
Examples of Newer Homes on Steep Slopes (>40%)



Berkley, CA





Portland, OR

Examples of Newer Homes on Steep Slopes (>40%)

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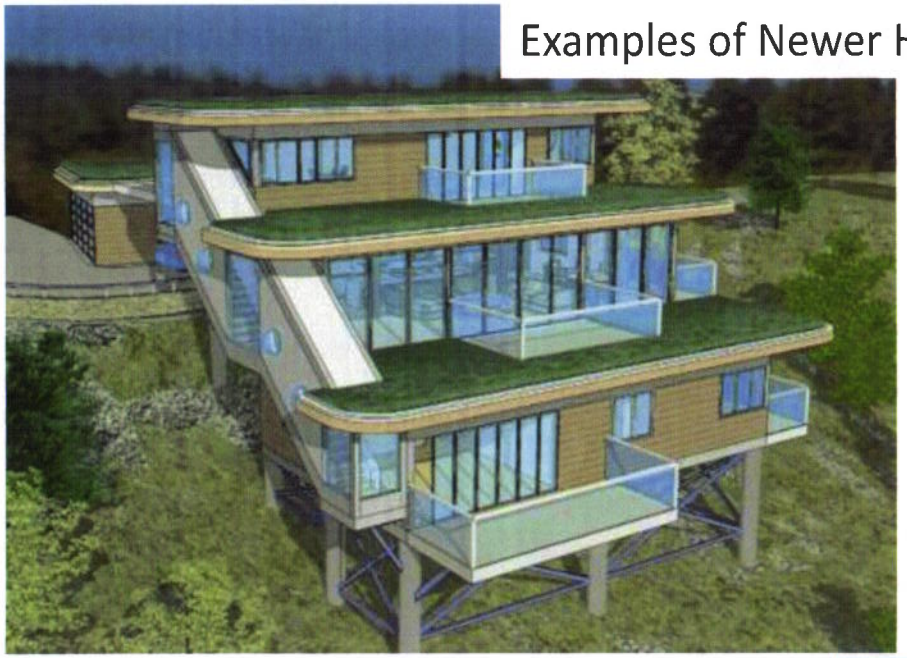
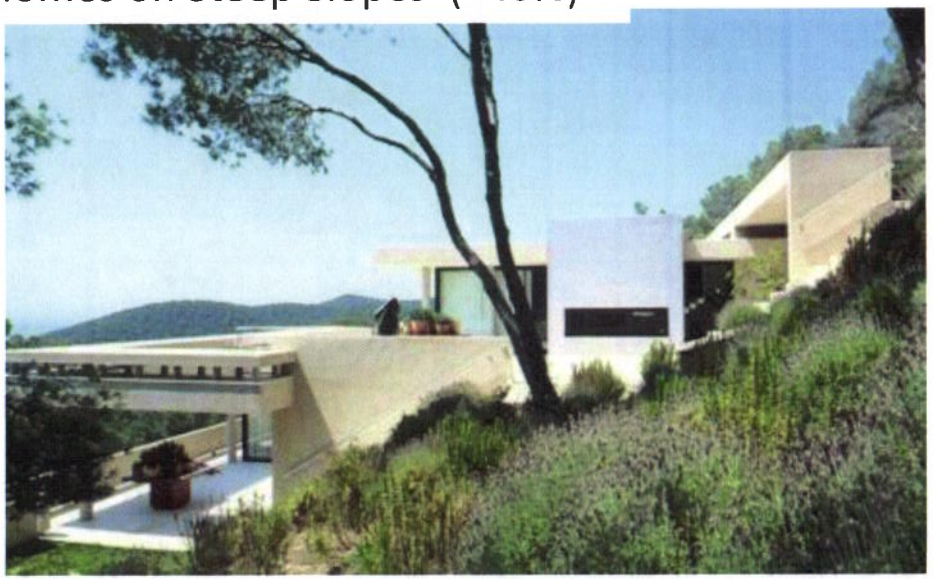
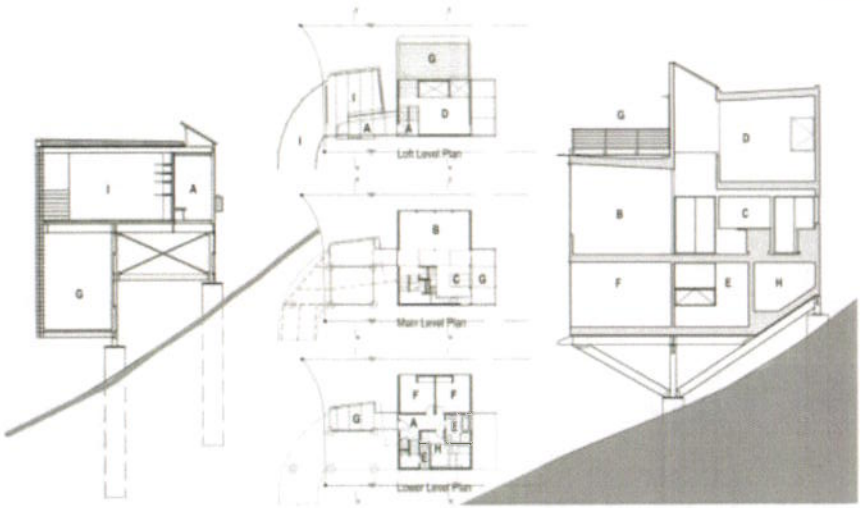
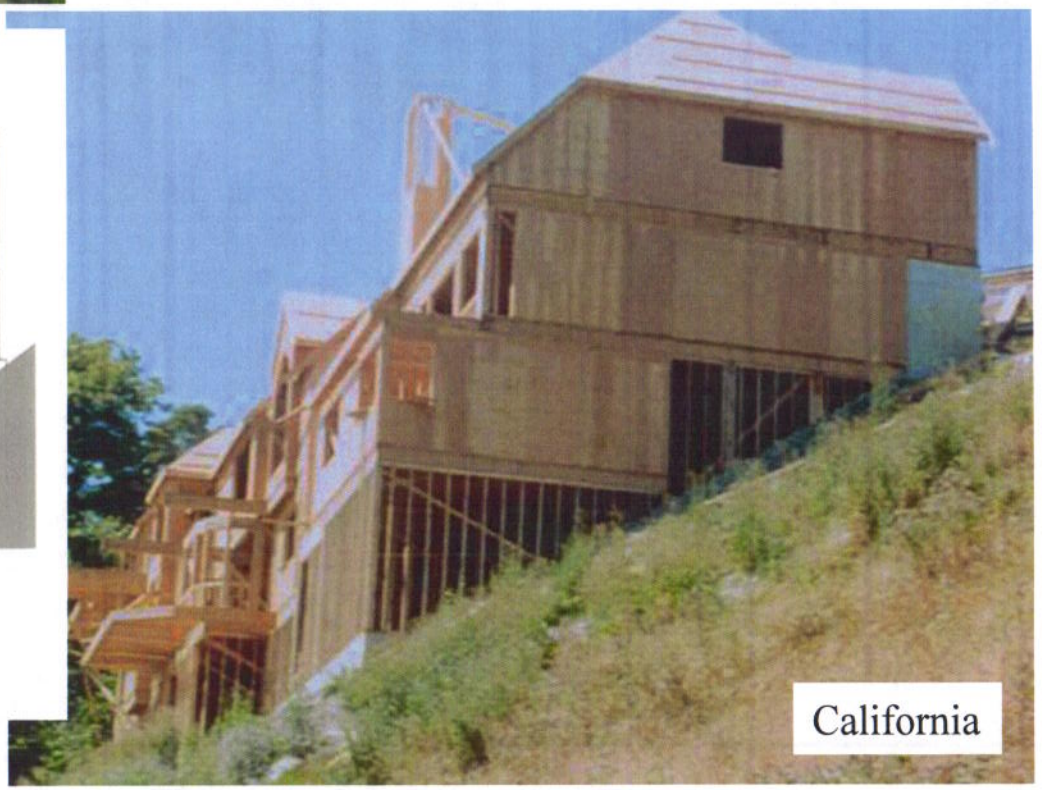






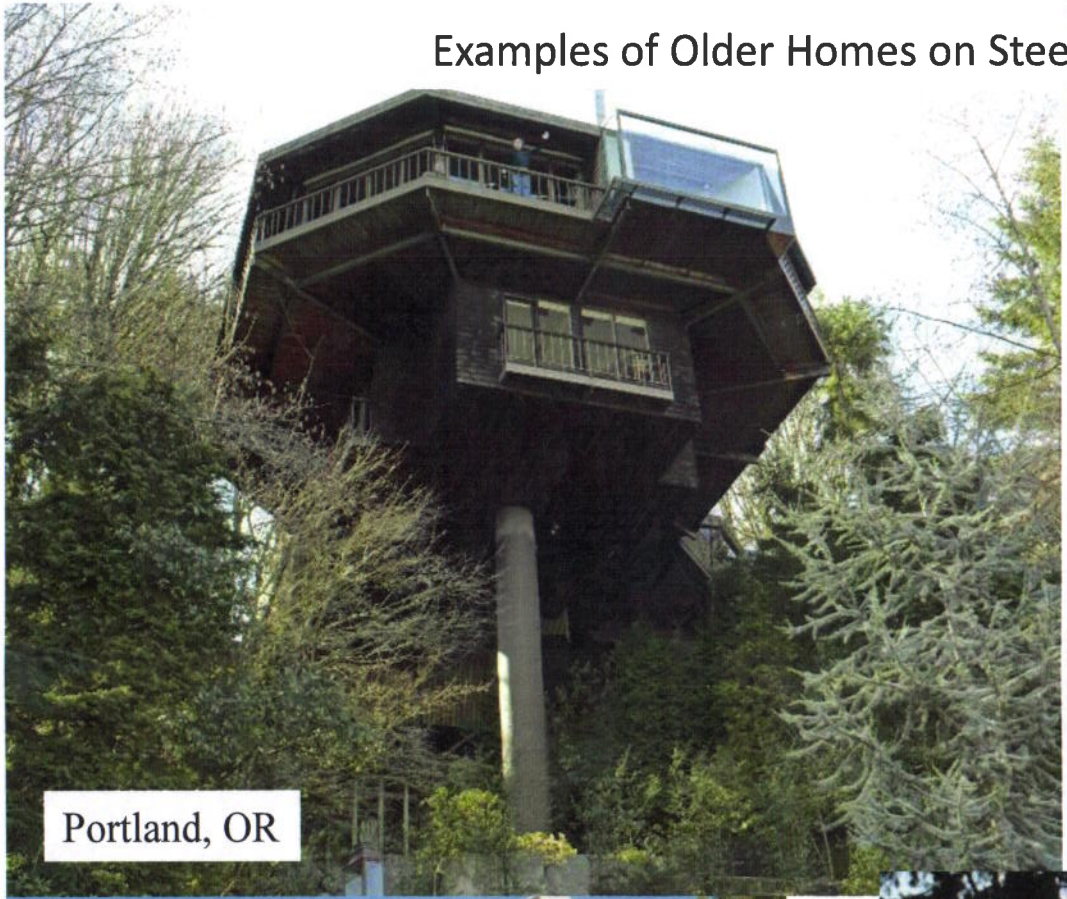
Washington

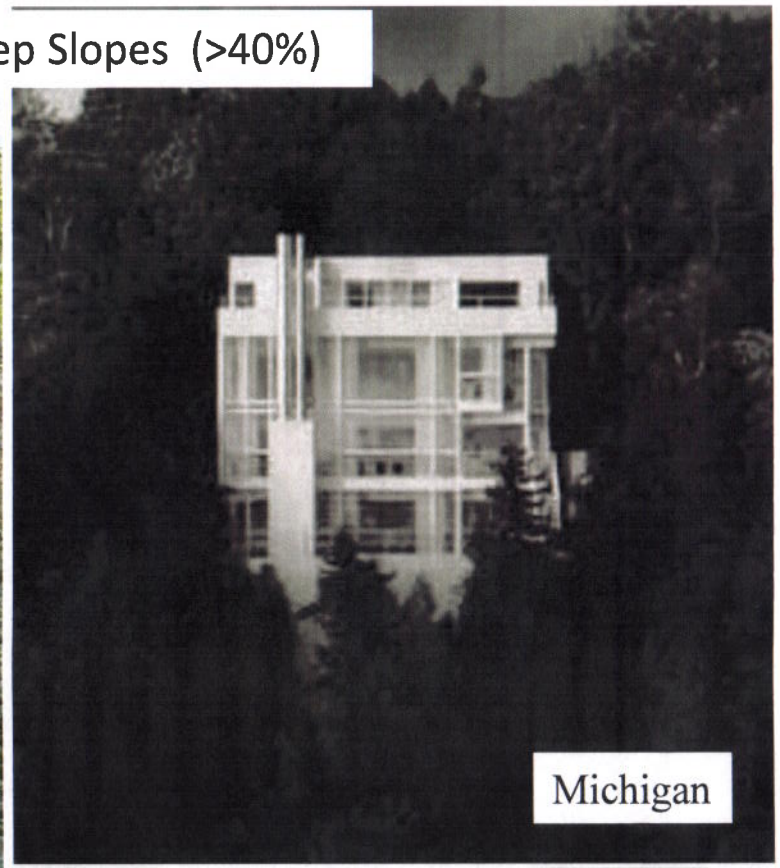


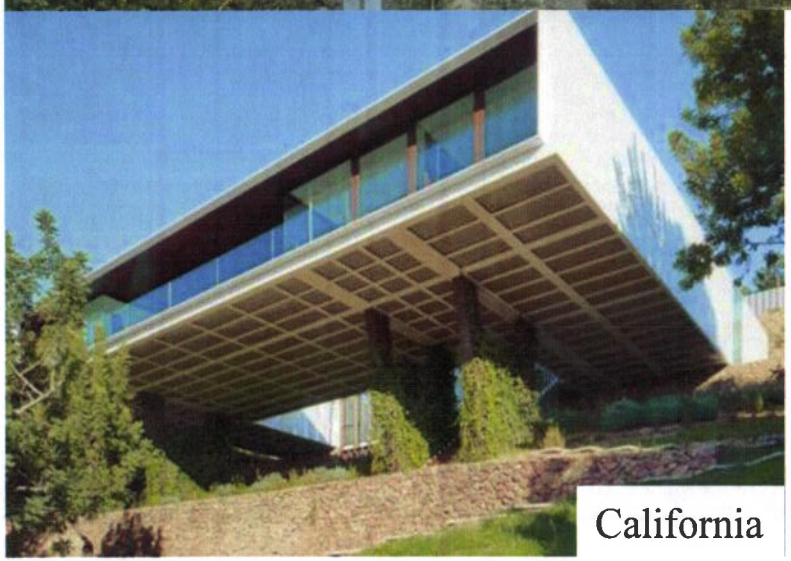
California

Example of Newer Homes on Steep Slopes (>40%)

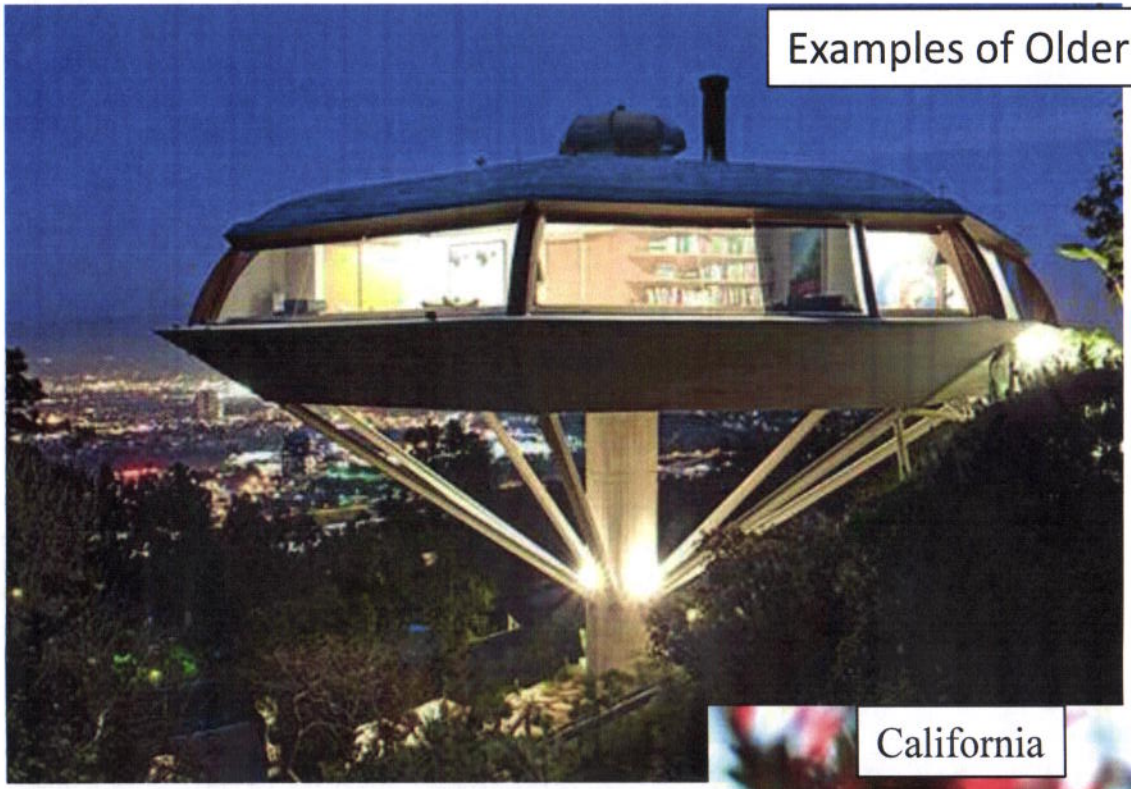
Examples of Older Homes on Steep Slopes (>40%)



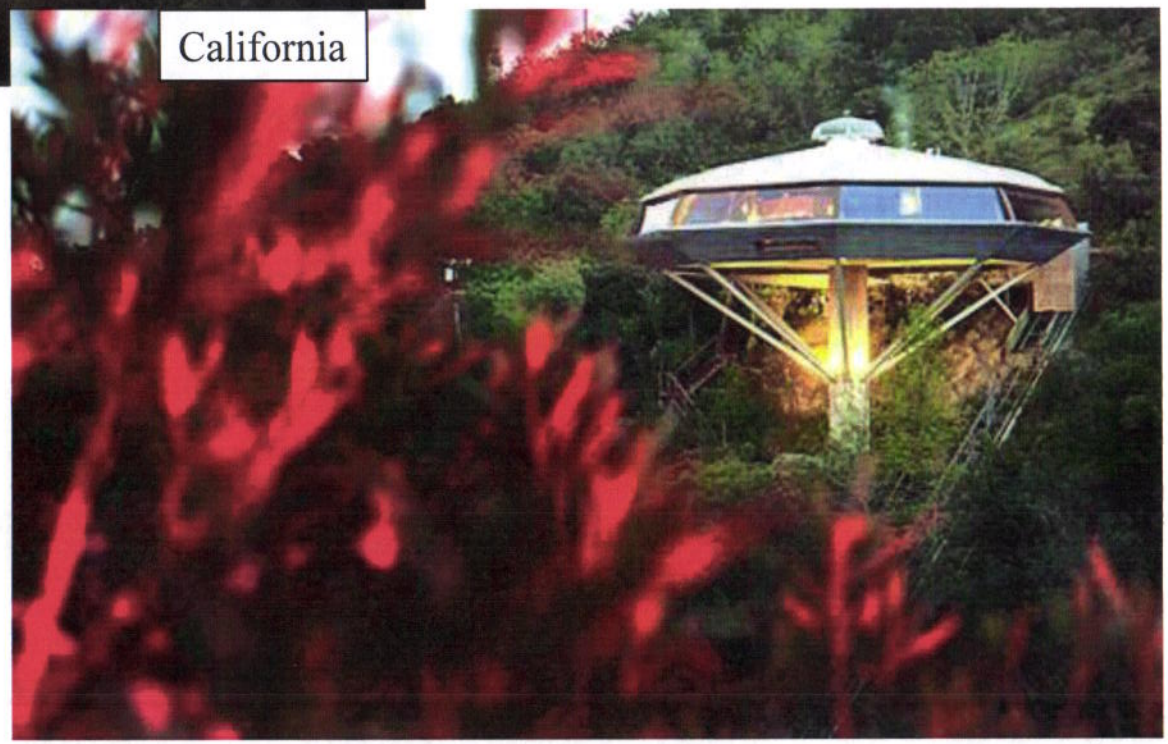




Examples of Older Homes on Steep Slopes (>40%)

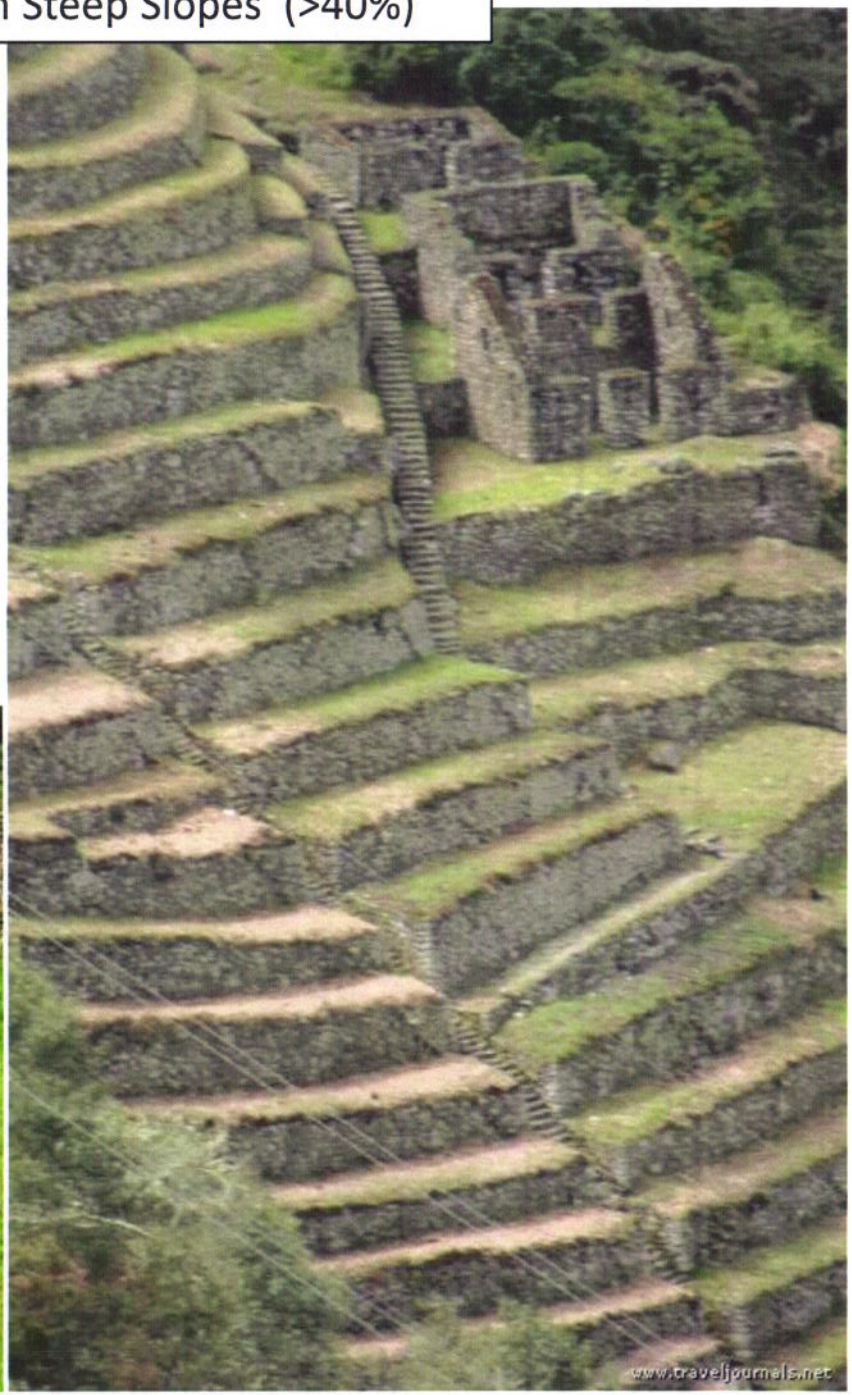


California

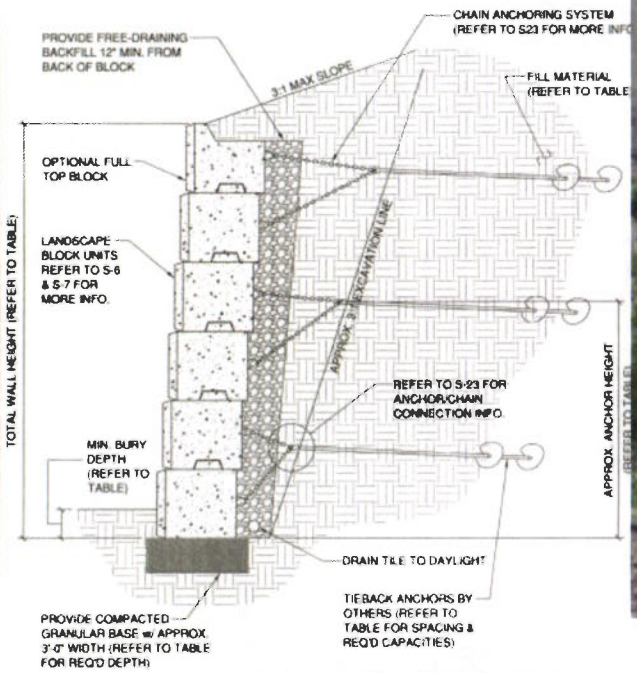


California

Examples of Very Old Homes on Steep Slopes (>40%)

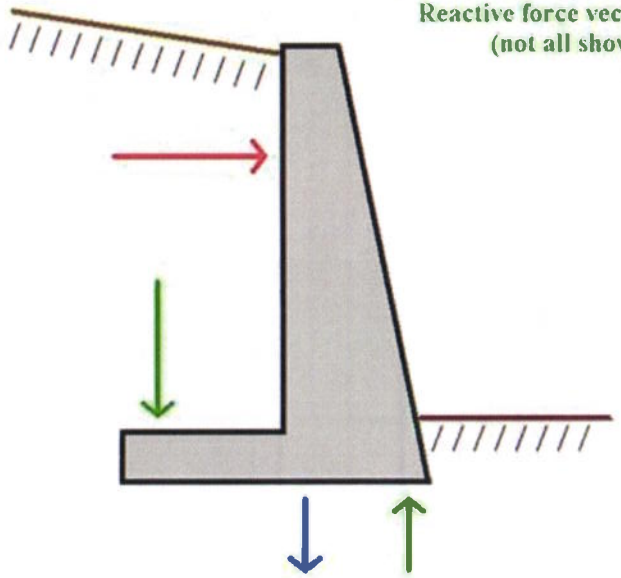


Examples of Retaining Wall Structures



Cantilever wall

Earth pressure vector
Gravity vector (of wall)
Reactive force vector
(not all shown)



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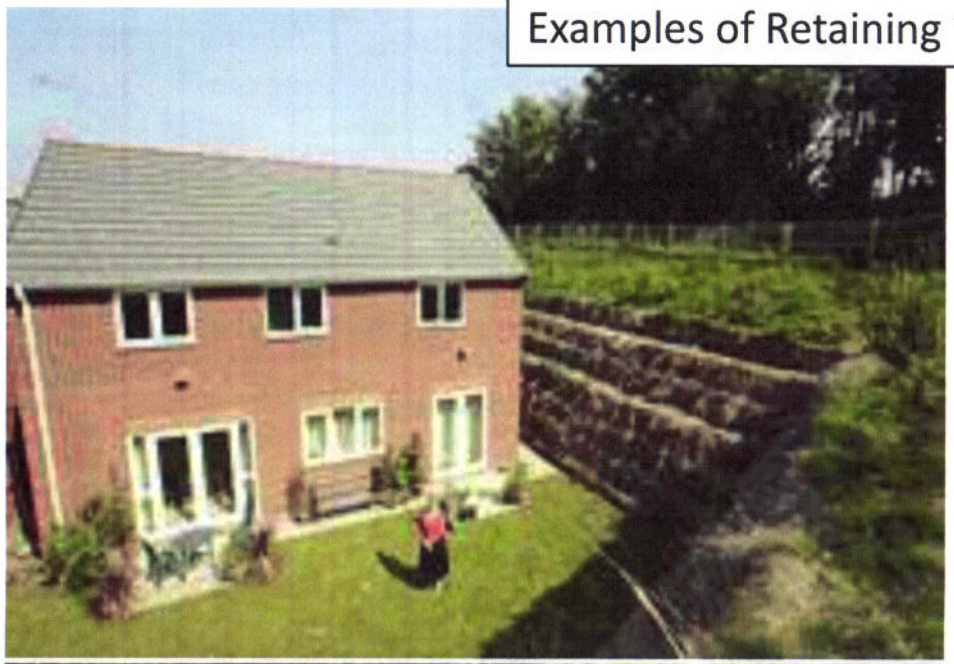

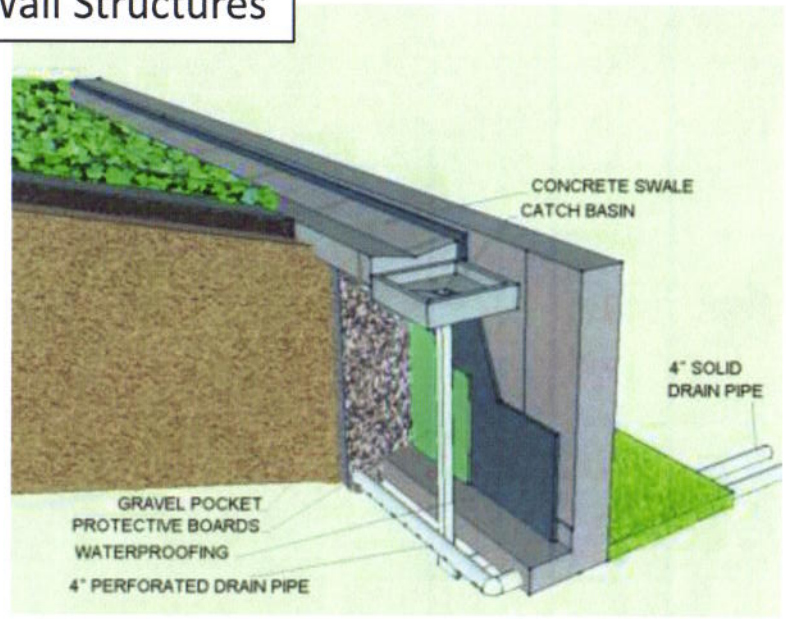

Retaining Walls